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## Static Electricity Precautions

1. Don't take this motherboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this motherboard by its edges. Do not touch those components unless it is absolutely necessary. Put this motherboard on the top of static-protection package with component side facing up while installing.

## Pre-Installation Inspection

1. Inspect this motherboard whether there are any damages to components and connectors on the board.
2. If you suspect this motherboard has been damaged, do not connect power to the system. Contact your motherboard vendor about those damages.

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**P17G/1333 Series, V1.0A**
**August 2007**

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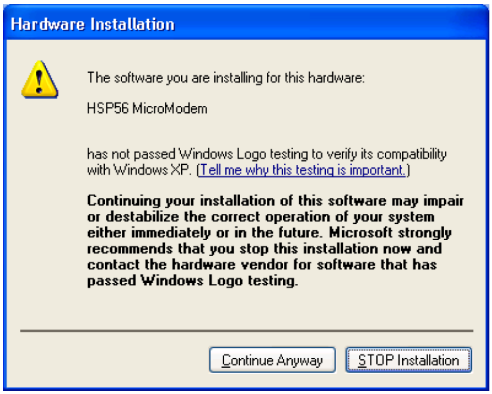
## Notice:

Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pop out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Just click the "Continue Anyway" button and go ahead the installation.



# Chapter 1 Introduction

This motherboard has a **LGA 775 socket** for latest **Intel® Core™ 2 Duo/Celeron® D** processors with **Hyper-Threading Technology** and Front-Side Bus (FSB) speeds up to **1333/1066/800/533** MHz. Hyper-Threading Technology, designed to take advantage of the multitasking features gives you the power to do more things at once.

This motherboard integrates the **945GC** Northbridge along with **Intel I/O Controller Hub 7 (ICH7)** that supports the **Serial ATA** interface for high-performance and mainstream desktop PCs; the built-in **USB 2.0** providing higher bandwidth and implementing **Universal Serial Bus Specification Revision 2.0.**

It supports 6-channel **High Definition Audio Codec** and provides one **IDE Ultra ATA** 100/66/33 channel. It has one **PCIEX16** slot and two 32-bit **PCI** slots. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one optional LAN port, one VGA port, audio jacks for microphone, line-in and line-out, and four back-panel USB 2.0 ports. In addition, onboard USB headers provide extra ports by connecting the extended USB module to the motherboard.

It is an **Micro ATX** motherboard and has power connectors for a ATX power supply.

## Key Features

The key features of this motherboard include:

### LGA775 Socket Processor Support

- Supports the latest **Intel® Core™ 2 Duo/ Celeron® D** processors with **Hyper-Threading Technology**
- Supports up to **1333/1066/800/533 MHz** Front-Side Bus

**Note:** 1. **Hyper-Threading** technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate 'logical' processors within the same physical processor.

2. Under ECS validation, this motherboard is able to support FSB 1333 MHz.

### Chipset

There are **945GC Northbridge** and **Intel I/O Controller Hub 7 (ICH7)** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance.

- Hyper-Threading Technology

- System Memory Controller Support
  -Supports DDR2 SDRAM with up to maximum memory of 2 GB
- PCI Express Graphics Interface Support
  -One PCIEX16 slot for Graphic Interface
- PCI Bus Interface
  -Supports PCI Revision 2.3 Specification at 33 MHz
- Integrated Serial ATA Host Controller
  -Supports four ports with data transfer rate up to 3.0 Gb/s
- Integrated IDE Controller
  -Ultra ATA 100/66/33 Support
- USB 2.0
  -Integrated USB 2.0 Host Controller supporting up to eight USB 2.0 ports

### Memory Support

- Two DIMM sockets for **DDR2 667/533/400** DDR SDRAM with Dual-channel architecture
- Maximum installed memory is 2 GB

### Expansion Slots

- One PCIEX16 slot for Graphic Interface
- Two 32-bit PCI v2.3 compliant slots
- One 40-pin IDE connector that supports two IDE devices
- One floppy disk drive interface
- Four 7-pin SATA connectors

### Onboard IDE connector

- One IDE connector that supports PIO (Programmable Input/Output) and DMA (Direct Memory Access) modes
- Supports IDE Ultra DMA bus mastering with transfer rates of 100/66/33 MB/sec

### Serial ATA

- Four Serial ATA Connectors
- Transfer rate exceeding best ATA (~3.0 Gb/s) with scalability to higher rates
- Low pin count for both host and devices

### Audio

- 5.1 Channel High Definition Audio Codec
- All DACs support 192K/96K/48K/44.1KHz sample rate
- Software selectable 2.5V/3.75V VREFOUT
- Meets Microsoft WHQL/WLP 2.x audio requirements
- Direct Sound 3D™ compatible

### Onboard I/O Ports

- Two PS/2 ports for mouse and keyboard
- One serial port
- One VGA port
- Four USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

### Onboard LAN (optional)

The onboard LAN controller provides the following features:

| |
|---|
| • Integrated 10/100/1000 transceiver<br>• Supports PCI v2.3, 32-bit, 33/66 MHz<br>• Supports Wake-On-LAN (WOL) function and remote wake-up |
| • Supports 10/100 Mb/s N-Way Auto negotiation operation<br>• Half/Full duplex capacity<br>• Supports Wake-On-LAN (WOL) function and remote wake-up |

### BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters and memory timing
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

### Dimensions

- Micro ATX form factor of 244 x 210 mm

**Note**: Hardware specifications and software items are subject to change without notification.

## Package Contents

Your motherboard package ships with the following items:

- ❑ The motherboard
- ❑ The User's Guide
- ❑ One diskette drive ribbon cable (optional)
- ❑ One IDE drive ribbon cable
- ❑ The Software support CD

### Optional Accessories

You can purchase the following optional accessories for this motherboard.

- ❑ The Extended USB module
- ❑ The Serial ATA cable

**Note**: You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.

# Chapter 2 Motherboard Installation

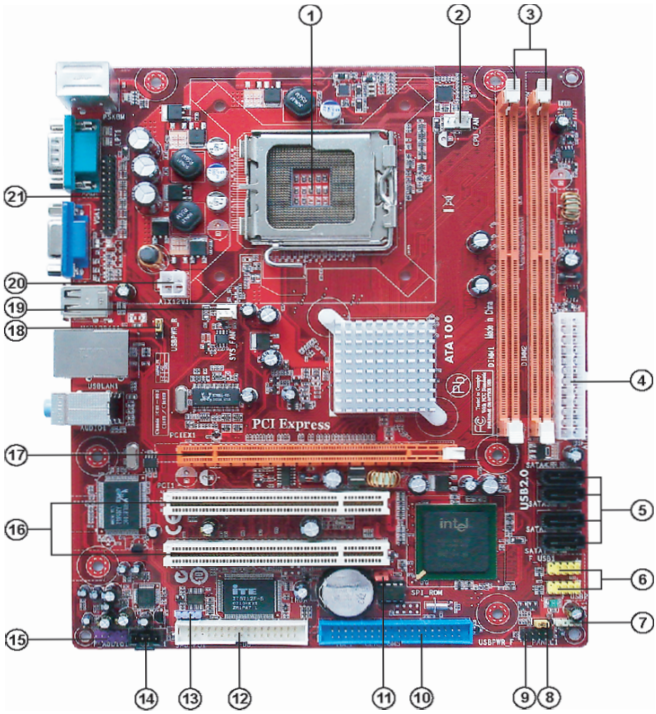
To install this motherboard in a system, please follow these instructions in this chapter:

- ❑ Identify the motherboard components
- ❑ Install a CPU
- ❑ Install one or more system memory modules
- ❑ Make sure all jumpers and switches are set correctly
- ❑ Install this motherboard in a system chassis (case)
- ❑ Connect any extension brackets or cables to headers/connectors on the motherboard
- ❑ Install peripheral devices and make the appropriate connections to headers/connectors on the motherboard

**Note**: 1 Before installing this motherboard, make sure jumper CLR_CMOS is under Normal setting. See this chapter for information about locating CLR_CMOS and the setting options.

2 Never connect power to the system during installation; otherwise, it may damage the motherboard.

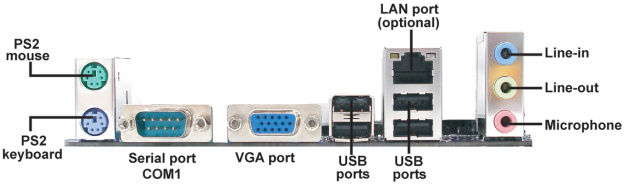
## Motherboard Components



| ITEM | LABEL | COMPONENTS |
|---|---|---|
| 1 | CPU Socket | LGA775 Socket for Intel® Core™2 Duo/ Celeron® D CPUs |
| 2 | CPU_FAN | CPU cooling fan connector |
| 3 | DIMM1/2 | 240-pin DDR2 SDRAM slots |
| 4 | ATX1 | Standard 24-Pin ATX Power connector |
| 5 | SATA1~4 | Serial ATA connectors |
| 6 | F_USB1~2 | Front Panel USB headers |
| 7 | SPK1 | Speaker header |
| 8 | USBPWR_F | Front Panel USB Power Select Jumper |
| 9 | F_PANEL1 | Front panel switch/LED header |
| 10 | IDE1 | Primary IDE connector |
| 11 | CLR_CMOS | Clear CMOS jumper |
| 12 | FDD | Floppy Disk Drive connector |
| 13 | SPDIFO1 | SPDIF out header |
| 14 | CD_IN1 | Analog audio input connecor |
| 15 | F_AUDIO1 | Front Panel Audio header |
| 16 | PCI1~2 | 32-bit add-on card slots |
| 17 | PCIEX16 | PCI Express slot for graphics interface |
| 18 | USBPWR_R | Rear Panel USB PS/2 Power Select Jumper |
| 19 | SYS_FAN | System Fan connector |
| 20 | ATX12V1 | 4-pin +12V power connector |
| 21 | LPT1 | Parallel port header |

## I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.




| | |
|---|---|
| **PS2 Mouse** | Use the upper PS/2 port to connect a PS/2 pointing device. |
| **PS2 Keyboard** | Use the lower PS/2 port to connect a PS/2 keyboard. |
| **Serial Port (COM1)** | Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1. |
| **LAN Port (optional)** | Connect an RJ-45 jack to the LAN port to connect your computer to the Network. |
| **USB Ports** | Use the USB ports to connect USB devices. |
| **Audio Ports** | Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone. |

## Installing the Processor

This motherboard has a **LGA775** socket for the latest **Intel® Core™ 2 Duo/ Celeron® D** processors. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

*Warning: Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.*

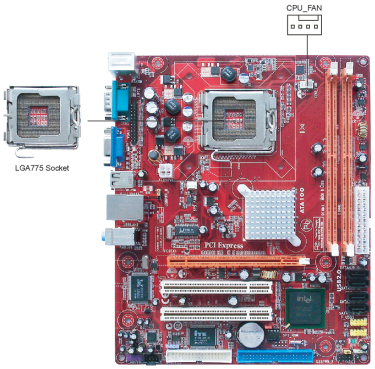
## Fail-Safe Procedures for Over-clocking

When end-users encounter failure after attempting over-clocking, please take the following steps to recover from it.

1. Shut down the computer.
2. Press and hold the "Page Up Key (PgUp)" of the keyboard, and then boot the PC up.
3. Two seconds after the PC boots up, release the "Page Up Key (PgUp)".
4. The BIOS returns to the default setting by itself.

### CPU Installation Procedure

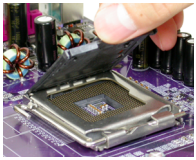
Follow these instructions to install the CPU:



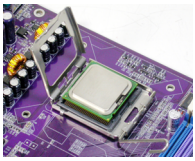
A. Read and follow the instructions shown on the sticker on the CPU cap.

B. Unload the cap
- Use thumb & forefinger to hold the lifting tab of the cap.
- Lift the cap up and remove the cap completely from the socket.

C. Open the load plate
- Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
- Lift up the lever.
- Use thumb to open the load plate. Be careful not to touch the contacts.



D. Install the CPU on the socket
- Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.



E. Close the load plate
- Slightly push down the load plate onto the tongue side, and hook the lever.
- CPU is locked completely.

F. Apply thermal grease on top of the CPU.

G. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.

H. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.

**Note:** 1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

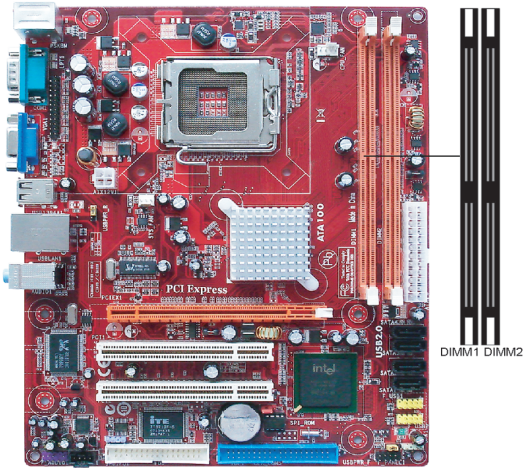
2. DO NOT remove the CPU cap from the socket before installing a CPU.

3. Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA775 socket.

## Installing Memory Modules

This motherboard accommodates two 240-pin DIMM sockets (Dual Inline Memory Module) for unbuffered DDR2 667/533/400 memory modules (Double Data Rate SDRAM), and maximum 2 GB installed memory.

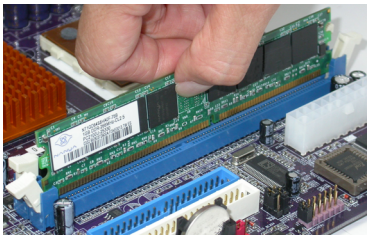
Over its predecessor DDR SDRAM, DDR2 SDRAM offers greater bandwidth and density in a smaller package along with a reduction in power consumption. In addition, DDR2 SDRAM offers new features and functions that enable a higher clock rate and data rate operations of 400 MHz, 533 MHz and 667 MHz. DDR2 transfers 64 bits of data twice every clock cycle.




### Memory Module Installation Procedure

These modules can be installed with up to 2 GB system memory. Refer to the following to install the memory module.

1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.



Please check the table below for the CPU FSB frequency and its corresponding memory support frequency.

| CPU FSB Frequency | Memory Support Frequency |
|---|---|
| 1333 | DDRII533, DDRII667* |
| 1066 | DDRII533, DDRII667 |
| 800 | DDRII400, DDRII533, DDRII667 |
| 533 | DDRII400, DDRII533 |

*When you use a FSB1333-CPU on this motherboard, it will run at DDRII500 if you adopt a DDRII533 memory module; and it will run at DDRII500 if *"DRAM Frequency"* in *"Frequency/Voltage Control"* of BIOS is selected to "*Auto*", while it will run at DDRII667 when selected to "*667MHZ*".

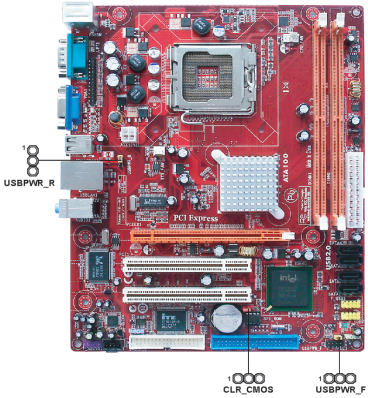
## Table A: DDR2 (memory module) QVL (Qualified Vendor List)

The following DDR2 667/533 memory modules have been tested and qualified for use when you use a FSB 1333-CPU on this motherboard.

| Type | Size | Vendor | Module Name |
|---|---|---|---|
| DDR2 533 | 256 MB | Corsair | VC256MB533D2 4PB11D9CHM |
| | | Elpida | Japan E2508AA-T7F-E |
| | | Kingmax | Hynix HY5PS121621 |
| | | Nanya | NT5TU32M16AG-37B |
| | | Ramaxel | 5PB42 D9DCD |
| | | Ramaxel | Elpida D5116AF-5C-E |
| | | Twinmos | Elpida 8D22IB-ED |
| | 512 MB | Aeneon | Aeneon AET94F370 |
| | | Aeneon | Aeneon AET93F370 |
| | | Corsair | Samsung K4T51083QB-ZCD5 |
| | | Corsair | VS512MB533D2 64M8CEC |
| | | Elpida | 04180WB01 |
| | | Hynix | HY5PS12821 |
| | | Infineon | HY818T512800AF37 33346778 |
| | | Kingston | Hynix HYB18T512800AF37 |
| | | Kingston | Hynix HY5PS12821 |
| | | Kingston | Nanya NT5TU64M8AE-37B |
| | | Ramaxel | 5PB32 D9DCN |
| | | Ramaxel | Elpida E5108AG-5C-E |
| | | Ramaxel | 6AD11 D9GCT |
| | | Samsung | PC2-4200U-4444-10-B1 K4T51083QF-ZCD5 |
| | | Twinmos | Samsung 8D22JB-KM |
| | | Twinmos | Elpida E5108AB-5C-E |
| | 1 GB | Apacer | Eipida E5108AB-5C-E |
| | | Geil | A016E2864T2AG8AKT5H120001 |
| | | Infineon | HY818T512800AF37 33344539 |
| | | Kingmax | KKEA88E4AAKG-37 |
| | | PQI | PQI PQB2648D38R0651 |
| DDR2 667 | 256 MB | Infineon | HYS64T325001HU-3-A HYB18T256 |
| | 512 MB | APOGEE | AU51082-667P005 |
| | | Corsair | 64M8CFE PS1000545 |
| | | Corsair | VALUESELECT 32M8CEC |
| | | GEIL | GL2L64M088BA18W |
| | | Infinity | 0547W64M8 PC5300 |
| | | PSC | AL6E8E63B-6E1T |
| | | Ramxel | 5LB31 D9DCL |
| | | Samsung | K4T51083QC |
| | | Sync | MAX 04400WB01 R050008A |
| | | Twinmos | TMM6208G8M30B |
| | | Transcend | JetRam J12Q3AB-6 |
| | 1 GB | APOGEE | AU51082-667P005 |
| | | Infineon | Aeneon AET93E30RB-0650 |
| | | PSC | AL6E8E63B-6E1T |
| | | PQI | PQI PQB2648D38R0648 |

## Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.




### CLR_CMOS: Clear CMOS Jumper

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your motherboard from operating. To clear the CMOS memory, disconnect all the power cables from the motherboard and then move the jumper cap into the CLEAR setting for a few seconds.

| Function | Jumper Setting |
|---|---|
| Normal | Short Pins 1-2 |
| Clear CMOS | Short Pins 2-3 |

**Note**: To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal De-faults" and then "Save Changes and Exit".

### USBPWR_F/USBPWR_R: USB Power Select Jumper

Use these jumpers to select the voltage for USB port.

| Function | Jumper Setting |
|---|---|
| VCC | Short Pins 1-2 |
| 5VSB | Short Pins 2-3 |

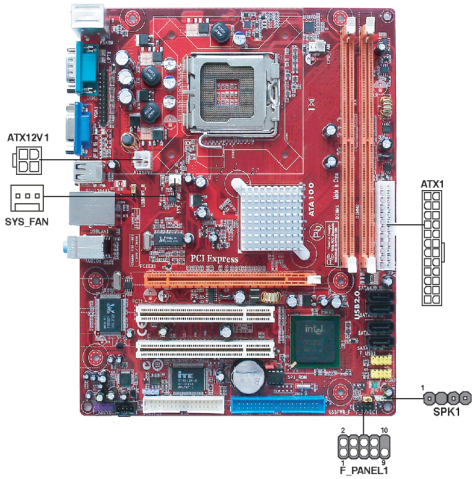
**Note**:1. Make sure the power supply provides enough SB5V voltage before selecting the SB5V function.

2. It is required that users place the USBPWR_F & USBPWR_R cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

## Install the Motherboard

Install the motherboard in a system chassis (case). The board is a Micro ATX size motherboard. You can install this motherboard in a Micro ATX case. Make sure your case has an I/O cover plate matching the ports on this motherboard.

Install the motherboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.




Connect the power connector from the power supply to the **ATX1** connector on the motherboard. The **ATX12V1** is a +12V connector for CPU Vcore power.

Connect the auxiliary case power connector to the **ATX12V1** connector.

Connect the system cooling fan connector to **SYS_FAN**.

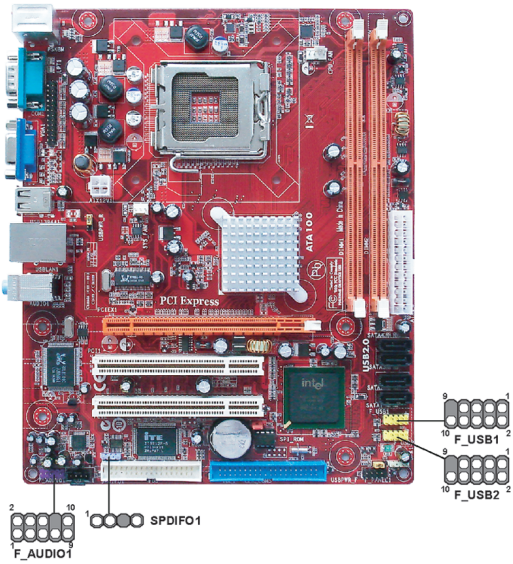
Connect the case speaker cable to **SPK1**.

Connect the case switches and indicator LEDs to the **F_PANEL1** header. Please refer to the following list of the F_PANEL1 pin assignments.

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | HD_LED_P(+) | 2 | FP PWR/SLP(+) |
| 3 | HD_LED_N(-) | 4 | FP PWR/SLP(-) |
| 5 | RESET_SW_N(-) | 6 | POWER_SW_P(+) |
| 7 | RESET_SW_P(+) | 8 | POWER_SW_N(-) |
| 9 | RSVD | 10 | KEY |

## Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:




### F_AUDIO1: Front Panel Audio Header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | PORT1L | 2 | GND |
| 3 | PORT1R | 4 | PRESENCE# |
| 5 | PORT2R | 6 | Sense1_return |
| 7 | SENSE_SEND | 8 | KEY |
| 9 | PORT2L | 10 | Sense2_return |

### F_USB1/F_USB2: Front Panel USB Headers

The motherboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB headers F_USB1/F_USB2 to connect the front-mounted ports to the motherboard.

Here is a list of headers F_USB1/F_USB2 pin assignments.

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | USBPWR | 2 | USBPWR |
| 3 | USB_FP_P0(-) | 4 | USB_FP_P1(-) |
| 5 | USB_FP_P0(+) | 6 | USB_FP_P1(+) |
| 7 | GND | 8 | GND |
| 9 | KEY | 10 | USB_FP_OC0 |

1 Locate the F_USB1/F_USB2 headers on the motherboard.
2 Plug the bracket cable onto the F_USB1/F_USB2 headers.
3 Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

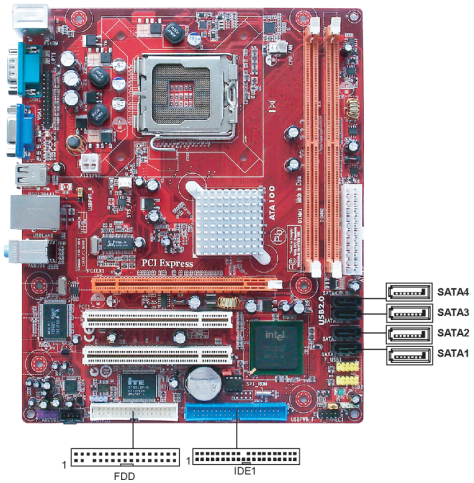
### SPDIFO1: SPDIF Out Header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coxial connector.

| Pin | Signal |
|---|---|
| 1 | SPDIFOUT |
| 2 | +5V |
| 3 | Key |
| 4 | GND |

## Install Other Devices

Install and connect any other devices in the system following the steps below.




### Floppy Disk Drive

The motherboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.

Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FDD**.

### IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

The motherboard ships with an IDE cable that can support one or two IDE devices. **IDE1** can support up to 2 IDE devices, data transporting in ATA-33/66/100 mode.

### Serial ATA Devices

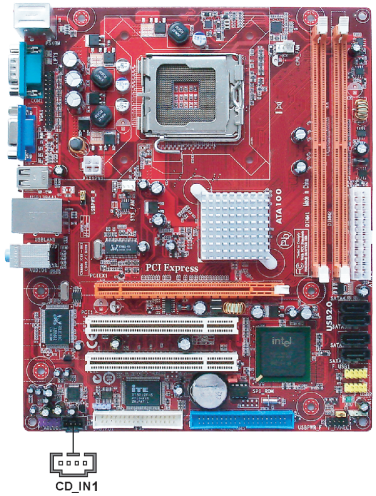
The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **3.0 Gb/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connecter on the motherboard.

On the motherboard, locate the Serial ATA connectors **SATA1-4**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

It eliminates limitations of the current Parallel ATA interface, but maintains register compatibility and software compatibility with Parallel ATA.

### Analog Audio Input Header

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.

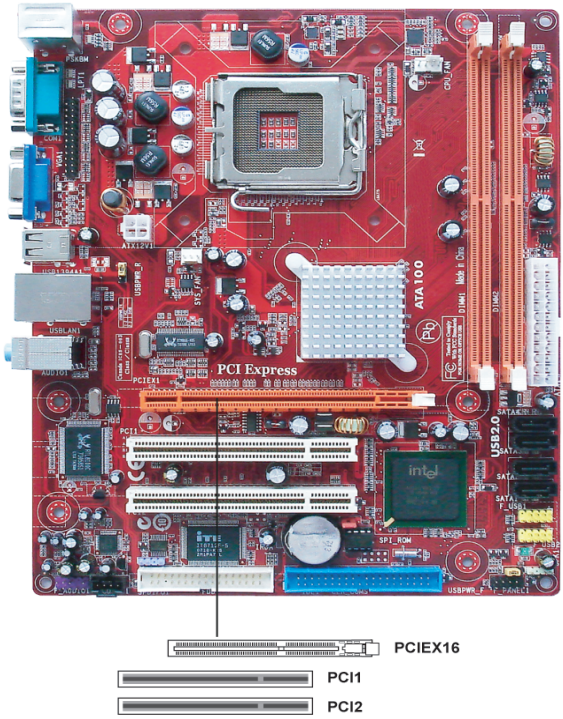



When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the motherboard, locate the 4-pin header **CD_IN1**.

| Pin | Signal |
|---|---|
| 1 | CD_L |
| 2 | GND |
| 3 | GND |
| 4 | CD_R |

## Expansion Slots

This motherboard has one PCIEX16 slot and two 32-bit PCI slots.




**PCIEX16 Slot** The PCIEX16 is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

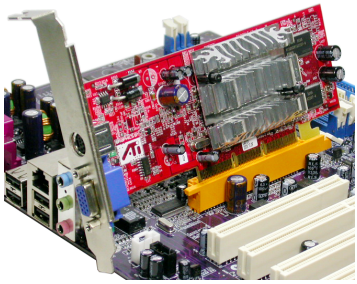
**PCI 1~2 Slots** This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

**Note:** 1. Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

2. FSB1333-CPU will operate in overclocking mode. Under this situation, PCIE frequency will also be overclocked from 100MHz to 125MHz.

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



**Note:** For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

# Chapter 3 BIOS Setup Utility

## Introduction

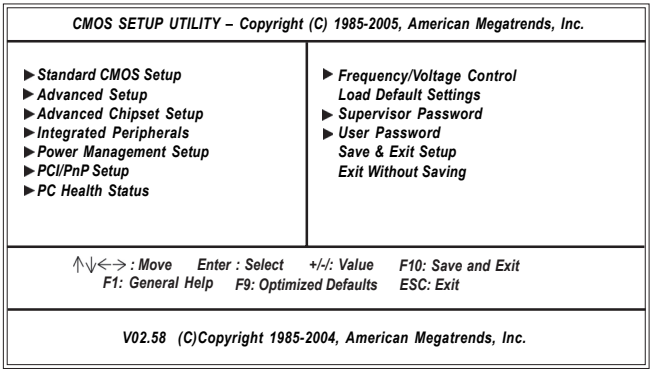
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the **Page Up** key while rebooting your computer. Holding down the **Page Up** key also clears the setup information.

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the motherboard, such as the CPU, system memory, disk drives, etc.

## Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to "*Hit <DEL>if you want to run SETUP*". Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor. If you manually clear CMOS, you need to press the **F1** key that enters the Main menu page of the Setup Utility.



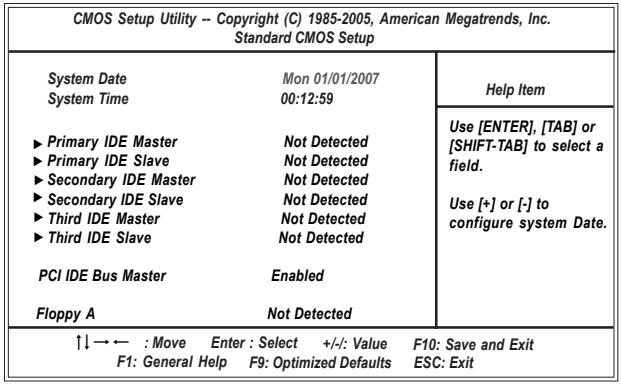
You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Press +/-/ to modify the selected field's values.

Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press ✚ and ▬ keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes requiring your answer OK or Cancel by selecting **[OK]** or **[Cancel]**.

If you have already changed the setup utility, press **F10** to save those changes and exit the utility. Press **F1** to display a screen describing all key functions. Press **F8** to load fail-safe defaults. Press **F9** to install the setup utility with a set of default values.

## Standard CMOS Setup Page

This page displays a table of items defining basic information about your system.




**Processor**

The item is automatically detected by the system at start up time. The Processor item shows the processor type and speed installed in your computer. This is display-only field. You cannot make changes to this field.

**System Memory**

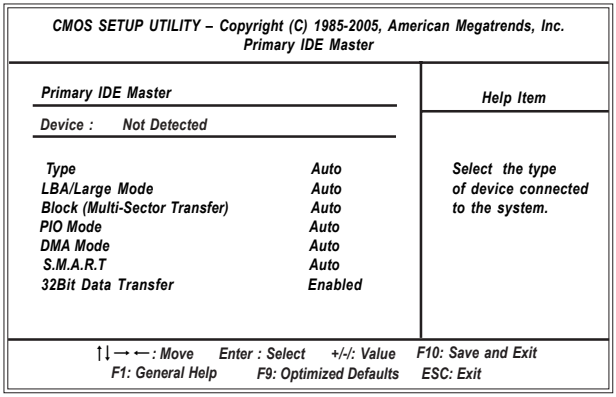
The item is automatically detected by the system at start up time. This is display-only field. You cannot make changes to this field.

**Time and Date**

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### ▶ IDE Devices

Your computer has one IDE channel which can be installed with one or two devices (Master and Slave). In addition, this motherboard supports two SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.




#### *Type (Auto)*

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

#### *LBA/Large Mode (Auto)*

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

#### *Block (Multi-Sector Transfer) (Auto)*

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

#### *PIO Mode (Auto)*

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

#### *DMA Mode (Auto)*

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

#### *S.M.A.R.T. (Auto)*

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

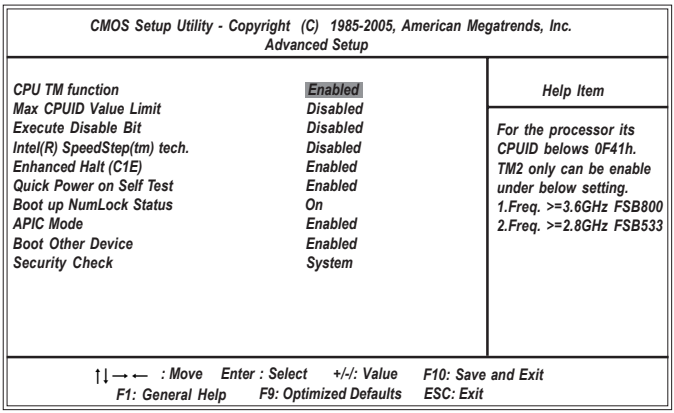
#### *32Bit Data Transfer (Enabled)*

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

## *Advanced Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.




### CPU TM function (Enabled)

For some specific brands of CPU, you can use this item to control the CPU frequency and voltage according to its temperature.

### Max CPUID Value Limit (Disabled)

Use this item to enable or disable the Max CPU ID value limit. When supports Prescott and LGA775 CPUs, enables this to prevent the system from "rebooting" when trying to install Windows NT 4.0.

### Execute Disable Bit (Disabled)

This item is a security feature that helps you protect your CPU and operating system against malicious software executing code. This item is available when CPU supports the feature.

### Intel (R) SpeedStep (tm) tech. (Disabled)

This item allows users to enable or disable the EIST (Enhanced Intel Speedstep Technology) function. This item shows only if the CPU supports EIST.

### Enhanced Halt (C1E) (Enabled)

This item enables or disables enhanced halt.

### Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

### Boot Up Numlock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

### APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

### Boot Other Device (Enabled)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

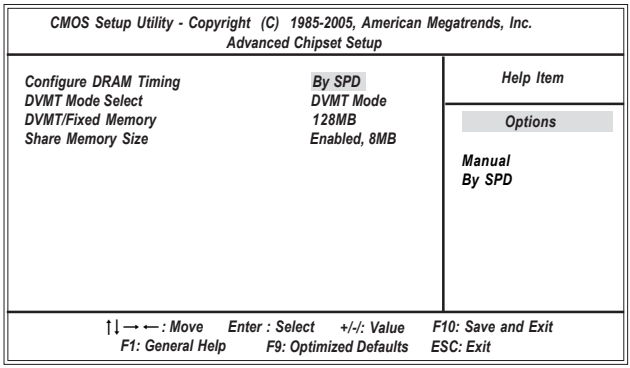
### Security Check (System)

This item is set to enable or disable the security check.

Press <Esc> to return to the main menu setting page.

## *Advanced Chipset Setup*

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.




### Configure DRAM Timing (By SPD)

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

### DVMT Mode Select (DVMT Mode)

This item allows you to select the DVMT operating mode.

### DVMT/Fixed Memory (128MB)

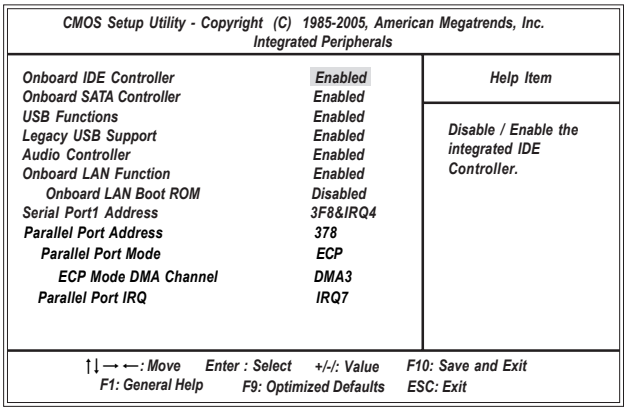
When set to Fixed Mode, the graphics driver will reserve a fixed portion of the system memory as graphics memory. When set to DVMT Mode, the graphics chip will dynamically allocate system memory as graphics memory, according to system and graphics requirements.

**Share Memory Size (Enabled, 8MB)**
This item lets you allocate a portion of the main memory for the onboard VGA display application.

Press <Esc> to return to the main menu setting page.

## *Integrated Peripherals*

This page sets up some parameters for peripheral devices connected to the system.




**Onboard IDE Controller (Enabled)**

Use this item to enable or disable the onboard IDE interface.

**Onboard SATA Controller (Enabled)**

Use this item to enable or disable the onboard SATA controller.

**USB Functions (Enabled)**

Use this item to enable or disable the USB function.

**Legacy USB Support (Enabled)**

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

**Audio Controller (Enabled)**

Use this item to enable or disable the onboard audio controller.

**OnBoard LAN Function (Enabled)**

Use this item to enable or disable the onboard LAN function.

**OnBoard LAN Boot ROM (Disabled)**

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

**Serial Port1 Address (3F8&IRQ4)**

Use this item to enable or disable the onboard COM1/2 serial port, and to assign a port address.

**Parallel Port Address (378)**

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

**Parallel Port Mode (ECP)**

Use this item to select the parallel port mode. You can selet Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

**ECP Mode DMA Channel (DMA3)**

Use this item to assign the DMA Channel under ECP Mode function.

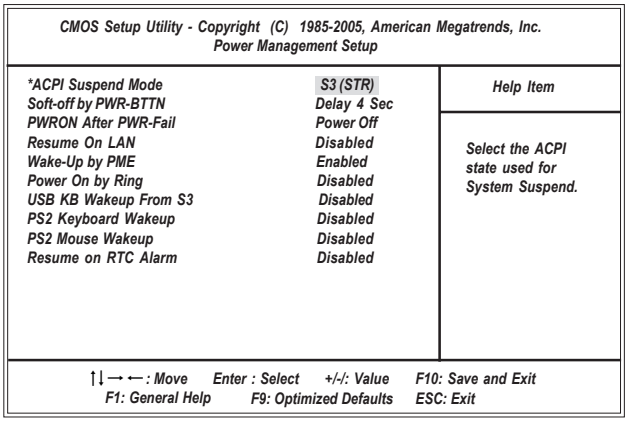
**Parallel Port IRQ (IRQ7)**

Use this item to assign IRQ to the parallel port.

Press <Esc> to return to the main menu setting page.

## *Power Management Setup*

This page sets up some parameters for system power management operation.




***ACPI Suspend Mode (S3(STR))**

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.This item will not show when the FSB reaches 1333MHz.

**Soft-Off By PWR-BTTN (Delay 4 Sec)**

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec, then you have to hold the power button down for four seconds to cause a software power down.

**PWRON After PWR-Fail (Power Off)**

This item enables your computer to automatically restart or return to its operating status.

**Resume On LAN (Disabled)**

This item allows users to enable or disable LAN activity to wake up the system from a power saving mode.

**Wake-Up by PME (Enabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

**Power On by Ring (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

**USB KB Wakeup From S3 (Disabled)**

This item allows you to enable/disable the USB device wakeup function from S3/S4 mode.

**PS2 Keyboard Wakeup (Disabled)**

This item enable or disable you to allow keyboard activity to awaken the system from power saving mode.

**PS2 Mouse Wakeup (Disabled)**

This item enable or disable you to allow mouse activity to awaken the system from power saving mode.

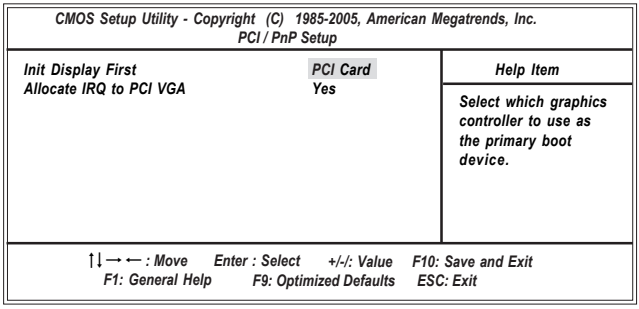
**Resume on RTC Alarm (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

## *PCI / PnP Setup*

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.



### Init Display First (PCI Card)

Use this item to select which graphics controller to use as the primary boot devices.

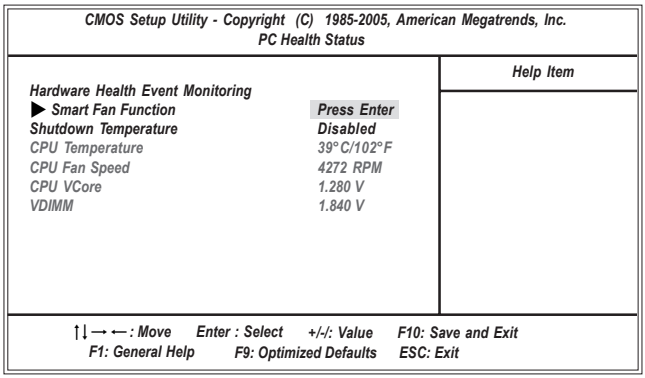
### Allocate IRQ to PCI VGA (Yes)

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Press <Esc> to return to the main menu setting page.

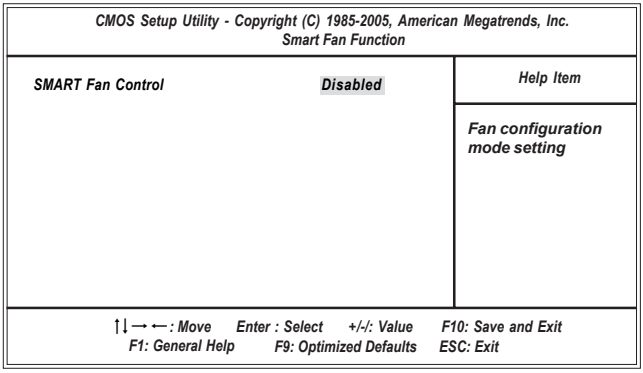
## *PC Health Status*

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.




### ▶ Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



***SMART Fan Control (Disabled)***

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

Press <Esc> to return to the PC Health Status page.

**Shutdown Temperature (Disabled)**

Enable you to set the maximum temperature the system can reach before powering down.

**System Component Characteristics**

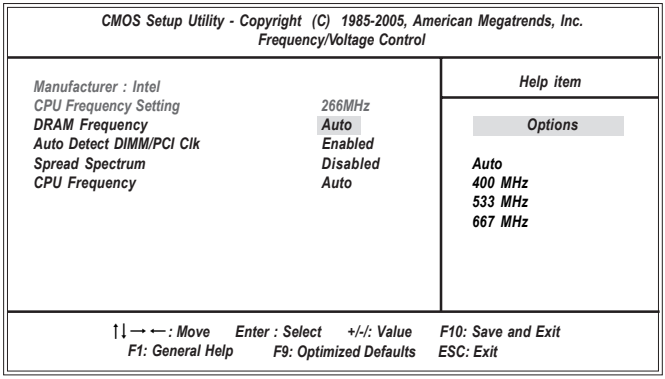
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Temperature
- CPU Fan Speed
- CPU VCore
- VDIMM

Press <Esc> to return to the main menu setting page.

## *Frequency/Voltage Control*

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.




**Manufacturer (Intel)**

This item displays the information of current manufacturer of the CPU installed in your computer.

### CPU Frequency Setting (266MHz)

This item allows you to set CPU frequency. And the CPU frequency will be 333MHz when the FSB reaches 1333MHz.

### DRAM Frequency (Auto)

This item shows the frequency of the DRAM in your computer. When it is FSB 1333MHz CPU, the select options will be Auto, 533MHz, and 667MHz, and when it is not FSB 1333MHz CPU, the select options will be Auto, 400MHz, 533MHz and 667MHz.

### Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

### Spread Spectrum (Disabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

### CPU Frequency (Auto)

Use this option to adjust CPU frequency. And this item shows only when the FSB reaches 1333 MHz.

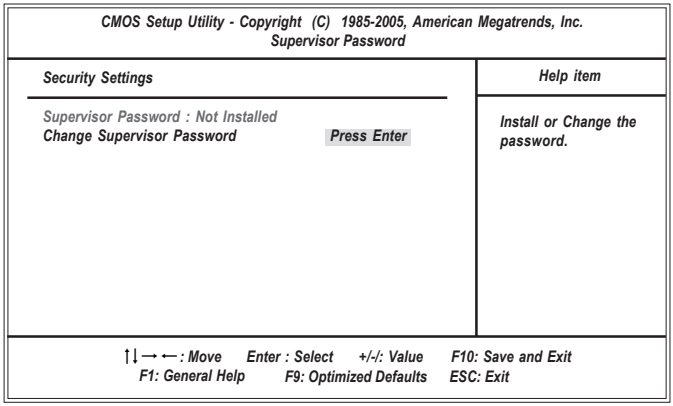
Press <Esc> to return to the main menu setting page.

## *Load Optimal Defaults*

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

## *Supervisor Password*

This page helps you install or change a password.



### Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

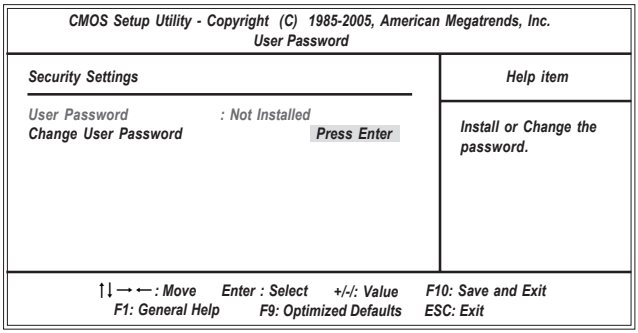
### Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

## *User Password*

This page helps you install or change a password.




### User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

### Change User Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

### *Save & Exit Setup*

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

### *Exit Without Saving*

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

**Note**: If you have made settings that you do not want to save, use the "Discard Changes and Exit" item and press <OK> to discard any changes you have made.

# Chapter 4 Software & Applications

## Introduction

This chapter describes the contents of the support CD-ROM that comes with the motherboard package.

The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support CD, simply insert the CD into your CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

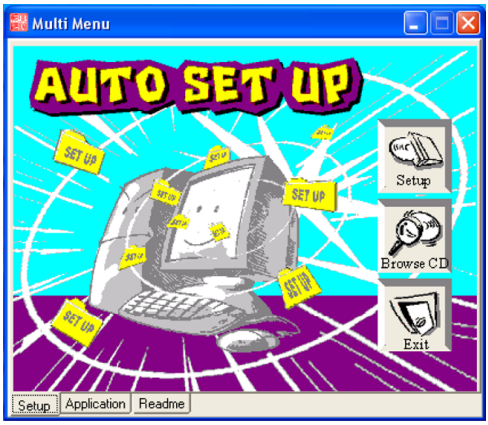
If your operating system is Windows 2000/XP, it will automatically install all the drivers and utilities for your motherboard; if Windows NT or manual installation, please follow the instructions described as the Installing under Windows NT or Manual Installation section.

## Installing Support Software

1 Insert the support CD-ROM disc in the CD-ROM drive.

2 When you insert the CD-ROM disc in the system CD-ROM drive, the CD automatically displays an Auto Setup screen.

3 The screen displays three buttons of **Setup**, **Browse CD** and **Exit** on the right side, and three others **Setup**, **Application** and **ReadMe** at the bottom. Please see the following illustration.




The **Setup** button runs the software auto-installing program as explained in next section.

The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows 98 file browsing interface.

The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive; or click the CD-ROM driver from the Windows Explorer, and click the Setup icon.

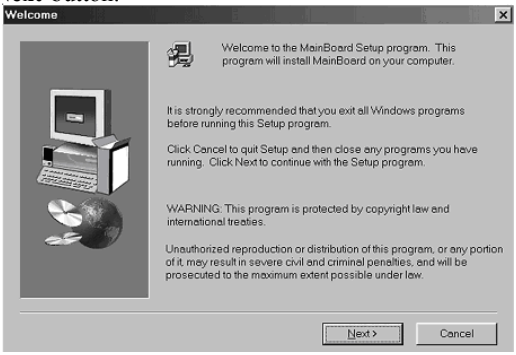
The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **ReadMe** brings you to the Install Path where you can find out path names of software driver.

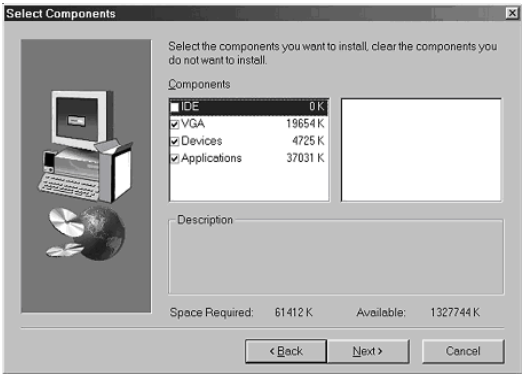
### Auto-Installing under Windows 2000/XP

If you are under Windows 2000/XP, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support CD-ROM:

1 The installation program loads and displays the following screen. Click the **Next** button.




2 Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.



3 The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

### Installing under Windows NT or Manual Installation

If you are under Windows NT, the auto-installing program doesn't work out; or you have to do the manual installation, please follow this procedure while the Auto Setup screen pops out after inserting the support CD-ROM:

1 Click the **ReadMe** to bring up a screen, and then click the Install Path at the bottom of the screen.
2 Find out your mainboard model name and click on it to obtain its correct driver directory.
3 Install each software in accordance with the corresponding driver path.

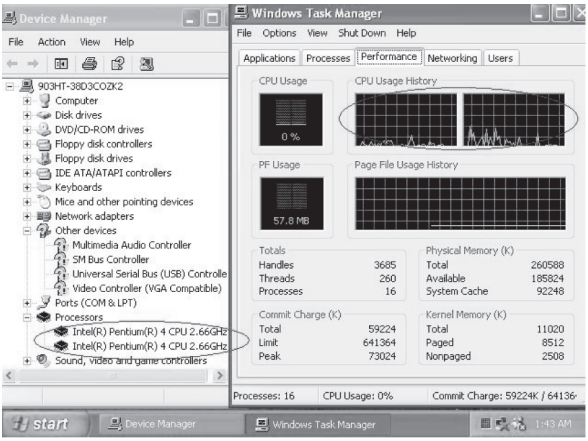
## Bundled Software Installation

All bundled software available on the CD-ROM is for users' convenience. You can install bundled software as follows:

1 Click the **Application** button while the Auto Setup screen pops out after inserting the support CD-ROM.
2 A software menu appears. Click the software you want to install.
3 Follow onscreen instructions to install the software program step by step until finished.

## Hyper-Threading CPU

While you are in Windows Task Manager, please push down ctrl+Alt Del keys. A dual CPU appears in the CPU Usage History&Device Manager under WinXP.




**Note**: Hyper-Threading Function only works under WINXP Operating System; therefore, disable it under other Operating System.